

Occurrence of the Sacoglossan Opisthobranch *Hermaea dendritica* ALDER & HANCOCK in New England

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THE PUBLISHED RECORDS of Sacoglossa from New England include only six species: *Elysia chlorotica* (GOULD, 1870), *Elysia catula* (GOULD, 1870), *Alderia harvardiensis* GOULD, 1870 – considered to be synonymous with *Alderia modesta* (LOVÉN, 1844) (HAND & STEINBERG, 1955; BLEAKNEY & BAILEY, 1967) – *Stiliger fuscatus* (GOULD, 1870), *Limapontia zonata* (GIRARD, 1852), and *Hermaea cruciata* GOULD, 1870. Of these, the latter 2 species have not been reported since their original descriptions. Thus, a new record would be the first addition to the fauna in nearly 100 years.

Hermaea dendritica ALDER & HANCOCK, 1855, a species occurring in Britain and Norway (SARS, 1878), the Mediterranean, and Japan (MARCUS, 1961), has twice previously been reported from the western Atlantic. MARCUS (1961) reported the species from North Carolina, and cited a manuscript by the late Dr. George Moore, noting the occurrence of *Hermaea dendritica* in New England. However, no description or analysis was given.

An established, breeding population of *Hermaea dendritica* has been discovered near the Marine Research Laboratory of the University of Connecticut, at Noank, Connecticut, from which specimens have been collected in May, 1967, and June to September, 1968. The specimens agree closely with the description and figures of ALDER &

HANCOCK (1846). Body color is cream-white or greenish, with the liver ramifications visible through the body wall as dark green or brown dendritic markings. The genital opening is triaulic, and the albumen glands extend into the cerata. There are from 18 to 65 smooth, club-shaped cerata arranged in a double dorso-lateral row on each side. The radula appears to be identical with that figured by ALDER & HANCOCK (1846) and BERGH (1886).

Adults measuring 4 to 8 mm in length have been collected from the alga *Codium fragile* (SURINGER) HARIOT 1867, which has only recently established itself in New England. The *Codium* bed from which the specimens were collected is located on a shell bottom in about 2.5 m of water, at a salinity of about 30‰. Adults and egg masses occur only on the upper, actively growing portions of the algae. The egg masses contain 80 - 130 eggs measuring approximately 70 μ , arranged in a broad flat coil of 1 - 1½ turns, the entire mass measuring 1.0 to 1.6 mm in diameter.

Hermaea dendritica must be compared with two other western Atlantic species, *H. coirala* MARCUS, 1961, from Brazil (MARCUS, 1961) and *H. cruciata* GOULD, 1870, from Naushon Island, Massachusetts (GOULD, 1870). *Hermaea cruciata* was briefly described by GOULD from a sketch provided by Alexander Agassiz. No type specimen of the species exists. The sketch closely resembles MARCUS' drawing of *H. coirala*. Both species differ from *H. dendritica* in the following ways: the cerata are distally inflated,

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with branching of the liver tubules at the tips, while those of *H. dendritica* are of uniform thickness and the liver tubules do not branch. The bodies of *H. coirala* and *H. cruciata* are only half as broad as that of *H. dendritica*. The oral veil of both species is markedly different, with the anterior margin of the foot divided by a short groove lacking in *H. dendritica*, and the cerata of *H. coirala* and *H. cruciata* are arranged in two single rows. *Hermaea coirala*'s rhinophores are distally bifid, but this feature cannot be discerned from Agassiz' sketch of *H. cruciata*.

Two factors imply that *Hermaea dendritica* has only recently become established in the New England region. First, as indicated by GONOR (1961), sacoglossans are highly selective feeders, being restricted to one or a few species of algae. Hence, it is highly unlikely that *H. dendritica* could survive in New England until its food species, *Codium*, had itself become established. Second, sampling of many *Codium* beds in Eastern Connecticut has failed to locate another population of the animal, a situation to be expected where an organism has newly extended its range.

LITERATURE CITED

- ALDER, JOSHUA & ALBANY HANCOCK
1846. A monograph of the British nudibranchiate Mollusca. Ray Soc., London
- BERGH, LUDWIG SOPHUS RUDOLPH
1886. Beiträge zur Kenntniss der Aeolidaden, VIII. Verh. Zool.-Bot. Gesellsch. Wien 35: 1 - 60
- BLEAKNEY, J. S. & KANIAULONO BAILEY
1967. Rediscovery of the salt-marsh sacoglossan *Alderia modesta* Lovén in eastern Canada. Proc. Malacol. Soc. London 37: 347 - 349
- GOULD, AUGUSTUS ADDISON
1870. Report on the Invertebrata of Massachusetts. 2nd ed. (Mollusca, W. G. BINNEY). Boston
- HAND, CADET & JOAN STEINBERG
1955. On the occurrence of the nudibranch *Alderia modesta* Lovén on the central Californian coast. The Nautilus 69 (1): 22 - 28
- MARCUS, ERNST
1961. Opisthobranchia from North Carolina. Journ. Elisha Mitchell Sci. Soc. 77 (2): 141 - 151
- SARS, G. O.
1878. Bidrag til kundskaben om Norges Arktiske fauna: I. Mollusca regionis Arcticae Norvegicae. i - xii + 466 pp., 34 + XVIII pls. Christiania

